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ABSTRACT

This discussion provides a nine-step base for improving instruction on the college level. Emphasis is placed on the need for higher levels of imagination and desire on the part of administrators and professors, plus the desire to develop both financial and manpower support to implement the nine-step basis for change. Applications and examples of the base for improving instruction are presented. Suggestions and cautions on implementation are indicated. (MJM)

CRITIQUE

A Quarterly Memorandum

The Center for the Study of Higher Education

The University of Toledo

EDITORIAL OPINION

NEW WINE IN OLD WINESKINS — WE HAVE NO CHOICE BUT TO TRY!

The method of instruction whereby Professor Good recites "wisdom" and students there assembled scratch it down on notebooks too often predestined to be lost in the student union is one long hallowed among the ladened traditions of higher education. Such clearly was appropriate in the 1200's when books were scarce and students were dependent upon hearing lectures verbatim in order to gain information. Yet while our society has changed since then, our teaching methods remain the same: near exclusive reliance upon the student's hearing what he needs to know from the mouth of the professor afixed before him — with varying secondary dependence upon a textbook to fill in details.

While it is true that research on college teaching has been consistent in its inability to measure significant differences regardless of the method of instruction utilized, it does not follow that therefore it makes no difference as to how one teaches. Surely teaching which inspires our students to live and to think critically and creatively while at the same time arms them with the necessary skills and tools is a goal to which every college instructor who has any understanding of what it means to be a "teacher" aims.

But often the issue is how a college faculty keeps abreast of developments in alternative teaching methods, the changing student population, and the perceived needs of the students, their parents, and the larger society. There are at least five options:

1. Selectively employ only those individuals who are "good teachers." The problem here is that it is almost impossible to tell in advance who will be a "good teacher" on any single campus until the person has taught there past the point at which the institution has made an informal, if not formal, commitment to that instructor.

2. Selectively terminate the individual who is a "poor teacher." But it is not easy to terminate a "poor teacher" without proof and to actually prove such is practically impossible.

3. Make the "poor teacher" an administrator, staff officer, or a director without instructional responsibilities. Yet higher education's past is full of examples where this maxim has been followed with dubious results.

4. Set up retention policies with direct monetary and non-monetary rewards for "good teaching." Too many of us naively believe that a whole faculty will strive to become "good teachers" simply because the institution, through a dubious procedure, names a few "outstanding teachers" each Spring.

5. Encourage teaching improvement by providing resources whereby faculty who do have a desire to improve their teaching effectiveness — and I submit that this would include more of our faculty than we might imagine, possibly even a strong majority — could be assisted in this venture.

The last option is sound, even if exceedingly difficult to accomplish. It requires commitment and support from the central administration as well as cooperation from a faculty body. It requires the presence of resource personnel skilled and creative yet distinctly apart from the "salary and promotion" mechanisms. In short, it requires the patience and wisdom of Solomon, but not only can it be done — it must be done.

Professor Emeritus Andrews offers us some pragmatic counsel at just this point — counsel that we may reject but that we would be foolish to ignore.

W.F.H.

LEARNING IN COLLEGE CAN BE IMPROVED, NOW!

L. O. Andrews*

Frequently college administrators make pronouncements on the importance of improving learning and teaching. Individual faculty members also make "New Year's" type resolutions to improve their teaching and consequently the learning in their classes. But neither of these good intentions in themselves necessarily brings about significant change.

On the other hand, as we move into the 1970's an increasing amount of knowledge is developing, many devices and procedures for teaching are available, and research is beginning to document both the rationale and the feasibility of procedures for improving learning and teaching while even more significantly, improving processes within the framework of the current collegiate scene. Learning can be improved substantially if college administrators and faculty seriously want to do so!

Current Demands

Those who listen to students know that students today want a part in making decisions which affect their development, want more responsibility for their own learning, want to help make decisions on "what they learn," "how they learn," "how they use their time," and above all else on "what is relevant." In short, students want more contact with current reality and more involvement in off-campus society. And significantly students prize personal contact with instructors.

At the same time, boards of trustees, administrators, legislators, and segments of the general public are looking for evidences of accountability, of professorial productivity and of standards for faculty loads. Many college teachers would welcome more recognition for teaching and the success of their students, as well as for the time and effort it takes to perform as an outstanding teacher. Scholars and researchers, meanwhile, want periods of uninterrupted time for their pursuits.

This writer believes that a position can be taken to provide a base for improving instruction which will, at the same time, bring about significant movement toward satisfying all of these goals during the 1970's.

Point of View

The 1960's witnessed a coming together of two mutually supportive developments: rapid improvements and new devices in the electronic and photographic media, and a rather wide range of refined and new instructional devices and procedures. Many institutions are acquiring the new media — the hardware — but are finding it more difficult to solve the "software" problems, that is, securing learning programs and the know-how to use the hardware effectively. In some areas, programmed texts are common and proven effective, but in the other media — such as audio and video tapes, single concept loop films, computer assisted instruction — very few programs, designed and tested for individual learning, are now available and only in a relatively small number of subject areas.

If *Programmed Learning* is broadly defined as any approach which provides a means of individual learning without an instructor being present, a very significant prediction can be made for the 1980's. By that time, it should be possible for any person to learn virtually anything that he wants to learn provided that:

1. He has sufficient desire to learn.
2. He has adequate background to learn the specific level of learning.
3. The proper "software" (programs) have already been prepared.
4. A teacher (facilitator of learning) is available on call who can help him identify and sharpen his learning needs, and assist in refining and adapting his learning strategies to the particular learning desired.

Some would add two cautions: that the above would not be true for certain of the higher, more abstract and philosophical types of learning, nor would it be true for certain of the higher professional skills and judgment areas. But otherwise, the above prediction is essentially a matter of when adequate, well designed programs — "software" — become available.

A steadily increasing amount of research has been done relating to this whole area of improving learning in college, but as yet the observable results are generally not impressive. Related research may be classified loosely as of three types: pure, applied experimental, and feasibility. Much more needs to be done to integrate the results of pure research into literature that is likely to be read by specialists in the several academic disciplines. Often the experimental research gives very disappointing results — sometimes because of the equating groups of learners, and in part because of the limitations of good measures of achievement. In many such projects the final results indicate

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"no significant difference," often for the above reasons, but also because the desired end product is a "global" result rather than a precise outcome.

An increasing number of projects at Ohio State, for example, have been designed as feasibility studies which give encouraging results by gathering a wider range of data, showing some evidences of effectiveness, as well as data on both the economic feasibility and the satisfaction derived by students and faculty. Some studies are oriented toward assisting in replication by the inclusion of guidelines, and some develop a wide range of new hypotheses to be checked out by application and research.

Throughout this whole discussion, one significant fact cannot be over-emphasized. New learning procedures can be designed and judged effectively only when the learning objectives have been carefully determined in relation both to the particular students involved and encompassing the whole range of goals for learning: cognitive, psychomotor, and affective. When this writer's parents were in college in the 1890's, cognitive goals were specified facts to be memorized and used academically, as in translation of a language or the solution of mathematical problems. But "quick-freezing" facts in the hope that learners can later "thaw" the right ones out when needed probably was a rather vain hope even then. In the 1970's when the "explosion of knowledge" is no joke or exaggeration, no one can be expected to become familiar with all knowledge in any discipline, and now scholars are even forced to use computer assistance for retrieval of information.

Today college instructors who give a course following the traditional pattern of "memorization of facts" alone as the primary goal for teaching, learning, and evaluation are kidding both themselves and their students, as well as giving support to students who insist college really is "irrelevant." Even in the more basic courses where knowledge of a field is an appropriate goal and both psychomotor and affective learning can be largely disregarded instructors would be wise to avoid stressing facts alone, but rather to emphasize the structure of the discipline, the key concepts, the major issues, the basic vocabulary, the organization of the field including how to find what one wants to know and how to use it when it is found, and finally — and perhaps most important — how to keep reasonably up to date in that field.

Assuming that a college teacher is familiar with many of the new and refined instructional and learning procedures and has available a wide range of the learning media, the question still remains, "Which one should be used?" Here again the importance of the sharpness of the course objectives and an insightful understanding of the particular students and their real needs cannot be stressed too much. Unfortunately the literature is full of exhortations of the value of one or another procedure, to the point that one is often led, erroneously, to assume that the authors actually believe that their method is the panacea — "do this and thou shalt be saved." This writer would contend that a *well designed learning package*, that is, a balanced combination of several methods carefully adapted and tested to attain specific objectives, is far more desirable than "jumping on the bandwagon" for any one device or single procedure. Arthur Combs[1] has so well described the "methods" issue at various times somewhat in this fashion. There are no right or wrong methods. Teachers should use the methods that fit the particular situation, i.e., the specific learning objectives, the needs of the particular students, and the life style of the instructor, himself. Clearly this suggests that lock-step education, the same approach for all ought to be as dead as the dodo. Fortunately, a wide variety of newer procedures make it possible and eminently feasible for college teachers to move away from such uniform teaching-learning procedures.

Rationale

The following steps are presented as a way of attacking the problem for most courses at the college level. Of course the process may be more effective and feasible for some courses than others, and an adequate supply of revised learning materials are now available only in a few areas. But concerned faculty members should be able to adapt this process to individual needs and situations.

1. Using as given the traditional bodies of content, the instructor's own perception of his purposes, a liberal amount of inputs from students as to their interests and needs, and relating the whole to the social milieu of the times, each instructor or course team of instructors needs to reduce the *goals of the course* to sharply focused objectives, with generous allowance for adaptation to individual interests and needs. Especially close attention should be paid to examining all the major types of learning objectives; cognitive, psychomotor, and affective. Without precise goals, making a wise choice of methods is only a delusion!

2. With these goals in hand a tentative decision should be made as to whether it is wiser to use a *laboratory based time schedule* or the more traditional lecture-discussion type. Even if only

[1]Arthur W. Combs, "The Human Aspect of Administration," Educational Leadership, November, 1970, pp 197-205.

the cognitive goals are chosen, a semi-laboratory based learning approach may be needed if self-paced learning is chosen as one of the primary aspects of the course organization. However, if perfection of skills is a high priority or if social learning in the affective range is desired some laboratory time becomes a necessity.

3. Nearly every course includes some content, the *basic knowledge* if you will, which can be learned more effectively by the individual through some type of *programmed learning* rather than in large groups. The best written textbooks really are organized as programmed learning material, but the modern programmed text carries this approach much further, with greater specificity. Numerous other approaches, some unfortunately much more costly, also provide for programmed learning such as computer assisted instruction (CAI) and various forms of dial access material, audio tutorial, etc.

4. Often as courses proceed both the instructors and the students become aware of gaps in their previous learning and knowledge, or some needed supplementary knowledge which would enhance the learning in the given course. If the programs for *remedial and supplementary learning* were available and familiar to the instructors so that the students could be stimulated to pursue these areas at the time of real need, much additional learning could also be carried on by each student on his own. For the more able and highly motivated student the same sort of programmed material of a supplemental nature for enrichment of learning would permit individual modification of the course in this direction again on a self-paced, individual-learning basis.

5. Once the content, described in 3 and 4 above, has been programmed for efficient use a major segment of time should have been vacated within the regularly scheduled course structure. Now the instructor has the opportunity to introduce some other learning activities within this time block. The range and variety of such procedures is legion, but they can be summarized briefly into two large groups: first, real, direct experiences on and off-campus, in communities, schools, and in the world of work — all those social and economic institutions which are so significant in our modern society. Second, vicarious experiences which now are often lumped together under the term "simulation," broadly defined, including role playing, games, elaborate training systems, shorter activities designed through the use of the media, etc.

6. One of the most important dividends which often accrues from changes of the type described above is that the instructor spends less time in front of the total class, since much of the time they are working in the laboratory using some sort of self-paced approach. Many instructors find this makes possible extensive contacts with individual students as never before. Remedial instruction, often in small and constantly shifting groups, assisting students in devising their own learning strategies, and an opportunity to assess student needs and difficulties are some of the beneficial activities in which instructors engage.

7. Changing human behavior has been demonstrated to be difficult at best, and all too little is known about the process despite encouraging progress in research and application in recent years. Understandably many professors, aware of academic traditions, find it threatening to suddenly change their behavior in front of the penetrating gaze of large numbers of highly critical college students. The tradition of the college professor is to teach as he was taught, and it goes clear back to the pattern established by those who sat at the feet of the Greek philosophers, and then went out to do likewise. Research makes it clear that *telling* someone what he should do is not often effective. Actually, even *showing* how it should be done is only slightly more effective — particularly if the instructor feels threatened by the change in any way. More sophisticated approaches to change are urgently needed. The perceptual psychologists tell us that normally *change can only be facilitated, encouraged and assisted.* Frequently the most effective way to change the perceptions, and thus the behavior, of a teacher is to assist him in designing and carrying out a specific new experience.

8. But how does a college provide that kind of support to assist the faculty in having new teaching-learning experiences? Obviously there are many ways, but this writer has been especially impressed by one of the models for differentiated staffing sometimes used in military education, often used by athletic coaching staffs, and now recommended and beginning to be used in public education. Colleges can, and in this writer's opinion must, provide support systems to assist the faculty who wish to change — consultant service on call when help is wanted.

Negotiations are becoming a way of life for school teachers and the process has begun on some college campuses. On careful analysis it becomes clear that the ultimate objective of negotiations for teachers is to obtain the right to make their own professional decisions as is common in other professions. This being the case, desirable change in teaching at any level, and especially at the college level, is not going to come about through

fiat or even any kind of old fashioned benevolent despotism. Real and lasting change in teaching methods can only come about as Arthur Combs says, from the "inside out," in ways that fit the person of the instructor.

9. What kinds of consultant service? For a long time colleges have provided expertise for both faculty and students in the person of librarians. Other types of specialists are not yet readily available but the following is a suggested list of the types which might be considered:

(a) staff who can assist faculty in the design, operation and public relations needed for *direct experiences* in all phases of life and society,

(b) staff who have expertise in the design and development of *simulation*, games, role playing, training aids, etc.

(c) senior staff with a realistic understanding of and experience in providing activities for students to develop their social *awareness* and clarification of values ("sensitivity training" generally of a task oriented type as opposed to the therapeutic orientation), and,

(d) staff especially skilled in assisting others in the *use of the media*, rather than just the operation and maintenance of hardware. Such consultants would need, in addition to their special expertise, either to maintain continuous, operational contacts with field laboratories, or to have special facilities and equipment on campus to use in designing experiences and in familiarizing the faculty with their use.

Applications and Examples

This writer has not had an opportunity to survey the many innovative plans and procedures now in use around the country. However, he is familiar enough with them to say that probably no institution follows the exact pattern proposed above, but every idea and practice described can be documented either in regular use somewhere or as the basis for some experiment or feasibility study. How a given institution puts the pieces together is of little moment. The significant point is that demonstrable improvement in learning is possible now using any or all of the various approaches and ideas described here. Only the briefest mention will be made of a few selected applications for documentation.

At Northwestern University a Center for the Teaching Professions, with seven staff members now, has been in operation two years following several years of preliminary development. The director, E. Claude Mathis says: "The autonomy of professors is a well established fact. What we don't do is go to a department or faculty member and tell them their teaching needs improvement. We do little in the way of initiating contact. Our strategy has been to make known what's available and then let them come to us."[2]

Frank Broadbent at Syracuse University developed a Teaching Problems Laboratory to which faculty could come for assistance in the design and preparation of simulation materials and procedures. Significant numbers of non-medically oriented faculty have been employed in many medical schools to work on a variety of approaches to the improvement of medical education. One of the common ways in which they have been used is in assisting with the evaluation of learning. This type of consultant-support service would aid many faculty members who find this an area in which they feel very uneasy and ill prepared.

One of the more common of the newer package plans for improving learning is often called audio-tutorial. Used frequently in science oriented courses, the student gets his directions for work from a tape recorder or by dial access while working in a laboratory setting with the instructor and assistants present to render immediate assistance. Many professional colleges, such as social work, occupational therapy, and education have specialists who provide arrangements and logistical support for off-campus experiences. Unfortunately, such persons are often carrying such heavy loads that they have little time for designing experiences and counseling with faculty supervisory personnel. But in the case of Antioch and other colleges using the alternating field work-study plan these facilitators become very expert in areas of design and arrangements in which the usual faculty member would feel very inadequate.

Recently a dissertation[3] completed at The Ohio State University reported a feasibility study on a complex package approach to the teaching of the course in music fundamentals to prospective elementary education students. All of the following characteristics were included in the teaching-learning package: self-paced learning, programmed learning, audio-tutorial, video-tutorial, performance-based objectives, open laboratory time schedlue, part-time piano laboratory, individual tests for mastery covering each segment of the course, instructor always present, and immediate remedial instruction to shifting, informal, small groups. The

[2]Michael A. Pollock, "Center for the Teaching Professions," Change Magazine, October, 1971, p 15.

[3]Judith A. McMillen, "A Feasibility Study of a Self-Paced, Performance-Based, Laboratory-Centered Music Fundamentals Course for Prospective Elementary Classroom Teachers." Unpublished Ph.D. dissertation, The Ohio State University, 1971.

pilot group's pre-test mean score was nearly 5 points lower than all the other sections used as the reference group taught in the usual lecture-discussion manner at the option of the several instructors. At the end of the quarter the pilot group had made a mean gain of 60.86 on a 100 item test while the reference group had a mean gain of only 41.31. A confidence scale was used to judge the student's feeling of confidence in using these musical skills. The reference groups, which on the average had had more musical instruction and experience in musical organizations than the pilot group, scored higher on the confidence scale in the pre-test than the pilot group; but on the post-test the pilot group showed significantly higher levels of confidence in all areas of knowledge than the reference group. No member of the pilot group dropped out, and every one of the 57 students passed every one of the performance based sectional tests at the agreed mastery level, including playing simple pieces on the piano. On the satisfaction scale the pilot group scored very high and their written comments indicated both that they had had a rewarding learning experience and a most enjoyable one as well. Obviously, not all courses lend themselves to such precision in the stating of objectives, but this feasibility study documented beautifully a fantastic improvement in learning with this package approach.

Another dissertation[4] reported in detail on an analysis of individualized instruction in foreign language. While the level studied was secondary, the implication for college teaching is great, especially for foreign language study but also for many other subjects in which advanced study is based upon mastery of more elementary material. Some of the more significant achievements of many of the programs studied were: much faster individual progress, much greater satisfaction for both learners and teachers, fewer drop-outs, and higher enrollments in advanced courses.

One of the outcomes of the study is a suggested set of guidelines for operating programs of individualized instruction. Some of the recommendations which seem applicable at the college level are: self-paced learning; flexible time schedules; flexible grouping according to activity, needs and interests; wider range of both materials selected to meet individual needs and presentation procedures; remedial help and material available as need is indicated to student or teacher; and constant evaluation of progress based upon goals jointly agreed upon by student and teacher.

[4]Donna Sutton, "A Feasibility Study of Individualized Foreign Language Programs in the High Schools of the United States." Unpublished Ph.D. dissertation. The Ohio State University, 1971.

Particularly striking is the support given by the above study and several others to the proposition that students of any level of ability can learn a foreign language with success and satisfaction under this type of instruction. The logic of this point of view is simple and quite in contrast to the traditional approach of recommending that only able students enroll in language classes. Obviously all students in college have learned one language. If then, they are allowed to study at their own rate, in their own way, and are interested in learning another language, they should be able to learn the second language; and the evidence shows that they can. A significant adaption to assist in this process has been the selection of study materials in the foreign language in a wide variety of subjects of special interest to the age group and particular student — for instance: racing, gourmet cooking, modern music, high fashions, sports, science fiction, etc.

Suggestions and Cautions on Implementation

Cost of equipment and materials is not as great a deterrent to adopting some of these procedures as has been commonly supposed. Many colleges now have some of the needed equipment, and much can be done with the inexpensive, modern audio tape recorders. Even the video tape recorders are becoming more compatible, less expensive and much more widely used. As their numbers increase, many new and significant uses are evolving for these video recorders in addition to the more obvious, so-called "mirror image." Tapes have a practicality not usually found in the making of films and records, because their reusability is high and normally the first cost of recording on tapes is relatively low. Much adaption can be made of existing materials by creative people if their purposes and designs have been carefully developed. For example, foreign language teachers are finding that some available texts can be broken down into small segments for self-pacing, and that self-tests are already available for some books covering small segments appropriate for self-pacing with mastery.

The folly of going into the purchase and elaborate use of costly equipment without the needed preliminary study and planning, plus extensive training of the instructional staff in the educational applications, is well documented from the frequent disturbing lack of use of expensive language laboratories in both schools and colleges. Some large scale campus-wide, closed circuit TV courses may have served as a temporary expedient to meet financial crises, but often students are unhappy with this type of instruction and miss the personal contact with instructors. When some one of the approaches, such as the audio-tutorial, is called upon

as an immediate solution to a backlog of students, such as increasing the enrollment by two, three or four times the planned space, equipment and enrollment limits, the resultant dissatisfaction should not be held against the new instructional pattern.

Many will observe that a full implementation of the approach presented here will require more time and energy on the part of certain faculty members. Indeed, at some stages that may well be, especially initially. However, it is well known that in several institutions professors accepted higher loads to preserve increases in salaries. Over the long pull it is reasonable to suspect that faculties will do somewhat the same in this area, especially if the results in both learning and satisfactions are substantially improved for all, and if the professor believes that the institution is willing to support his efforts with a differentiated staff of consultants and technical assistance, as well as adequate equipment and supplies.

Perhaps most important, greater recognition must be given to professors who successfully demonstrate leadership in improving instruction. But to bring this off, some of the cautions set forth in the survey of individualized learning in foreign language need to be emphasized. Pre-planning and prior preparation of materials is almost a necessity for success; and each faculty member needs to make his own choice on several issues depending on which way he will most feel comfortable. Some like the security of making one small change at a time until he and his students are well accustomed to that change, while others may want to devise a total package. Professors, like students, differ greatly in their openness to new experiences, and to their own perceptions as to which approach fits the material to be learned and the personality and preference of the professor. Many faculty members would be more interested in meeting the challenges and the loads described here if they knew that they would thereby earn an occasional quarter or semester to be devoted to full-time research, writing, or a combination.

What I have presented above is at best only a brief introduction to the possibilities and the progress being made in improving learning in college. But the means for this improvement are at hand! The primary need now is for higher levels of imagination and desire on the part of administrators and professors, plus the determination to develop the support — both financial and manpower — to implement the innovations, which in time may prove, when measured by effectiveness, definitely less costly than present practices.

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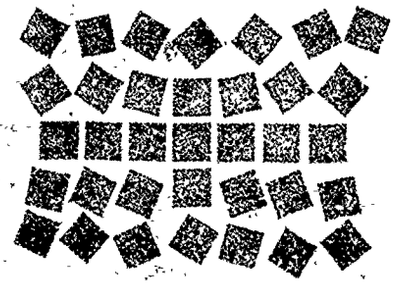

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